

# GUJARAT TECHNOLOGICAL UNIVERSITY

## MASTER OF BUSINESS ADMINISTRATION (Global Program)

Year – II (Semester – III) (W.E.F. January 2014)

**Specialization: Information System Management**

**Subject Name: System Analysis and Design (SA & D)**

**Subject Code: 2830402**

### **1. Course Objective:**

Systems analysts need to know about computers and programming, but they also should know and have a desire to use computers to solve problems. When a new information system will be a solution to a problem, it is important to understand the problem itself. This is the essence of systems analysis—understanding and defining what it takes to solve the problem. There are often many alternative solutions that will solve the problem. These solutions must be identified and carefully evaluated. A solution is chosen based on a variety of factors. The best solution has the greatest benefits and the fewest risks. The chosen solution is defined in detail, and then it is implemented. This course is designed to impart understanding of the software analysis and its design. After completion of this course student will be able to analyze and design the software.

### **2. Course Duration:**

The total hours for teaching this course will be 45 hours which will be divided into 36 sessions of 75 minutes each.

### **3. Course Content:**

The course will contain following modules

| Module | Module and Sub-Modules                                                                                                                                                                                                                                                                                                                                           | Sessions | Marks |
|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-------|
| I      | Foundations for System Development: Systems development Environment, The Systems Analysts skills, The Origin of Software, Nature and characteristics of software, sources of software, Managing the Information System Project<br>Systems Planning: Identifying and selecting systems development projects, Initiating and Planning systems Development Projects | 8        | 15    |
| II     | System Analysis: Determining System requirements, structuring systems process requirements, structuring system logic requirements, structuring system data requirements                                                                                                                                                                                          | 10       | 25    |

|            |                                                                                                                                                                                                                                                                        |          |                                       |
|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|---------------------------------------|
| <b>III</b> | System Design : Designing Databases, Designing forms and reports, designing interfaces and dialogues, finalizing design specifications, designing distributed and internet systems                                                                                     | <b>6</b> | <b>15</b>                             |
| <b>IV</b>  | Systems implementation and Maintenance: System Implementation, Maintaining Information systems, Unified Modeling Language, The Systems Analysts Toolkit – Communication Tools, CASE Tools, financial Analysis Tools, Project Management tools, Internet Resource tools | <b>8</b> | <b>15</b>                             |
| <b>V</b>   | <b>Practical:</b> Student shall study at least 4 to 5 Case Studies on Systems Implementation Projects.<br>The faculty shall guide students to develop the software so that can understand Systems Analysis Design practically                                          | <b>4</b> | Internal Evaluation (20 Marks of CEC) |

#### 4. Teaching Methods:

The course will use the following pedagogical tools:

- A. Case discussion covering a cross section of decision situations.
- B. Discussions on issues and techniques of Marketing.
- C. Projects/ Assignments/ Quizzes/ Class participation etc

#### 5. Evaluation:

The evaluation of participants will be on continuous basis comprising of the following elements:

|   |                                                                                                              |                                        |
|---|--------------------------------------------------------------------------------------------------------------|----------------------------------------|
| A | CEC- Projects/ Assignments/ Quizzes/ Individual or group Presentation/ Class participation/ Case studies etc | 50 marks<br>(Internal Assessment)      |
| B | Mid-Semester examination                                                                                     | Weightage 30%<br>(Internal Assessment) |
| C | End –Semester Examination                                                                                    | Weightage 70%<br>(External Assessment) |

#### 6. Basic Text Books:

| Sr. No. | Author                                                     | Name of the Book                    | Publisher        | Year of Publication |
|---------|------------------------------------------------------------|-------------------------------------|------------------|---------------------|
| T1      | Jeffrey A. Hoffer, Joey F. George and Joseph S. Valacich,  | Modern Systems Analysis and Design  | Pearson          | 5th Edition         |
| T2      | Gary B. shelly, Thomas J. Cashman and Harry J. Rosenblant, | Systems Analysis and Design Methods | Cengage Learning | Latest Edition      |
| T3      | Alan Dennis,                                               | Systems Analysis                    | Roth, Wiley      | 4th Edition,        |

|  |                                          |            |  |  |
|--|------------------------------------------|------------|--|--|
|  | Barbara Haley<br>Wixom and<br>Roberta M. | and Design |  |  |
|--|------------------------------------------|------------|--|--|

### 7 Reference Books:

| Sr. No. | Author                                                  | Name of the Book                                                             | Publisher        | Edition        |
|---------|---------------------------------------------------------|------------------------------------------------------------------------------|------------------|----------------|
| R1      | Roger, Pressman,                                        | Software Engineering                                                         | McGraw Hill      | Latest Edition |
| R2      | Kendal and Kendal                                       | System Analysis and Design                                                   | PHI              | Latest Edition |
| R3      | Waman S. Jawadekar                                      | Software Engineering Principles and Practice                                 | Tata McGraw Hill | Latest Edition |
| R4      | Alan Dennis,<br>Barbara Haley<br>Wixom, Roberta<br>Roth | System Analysis and Design                                                   | Wiley            | Latest Edition |
| R5      | Valaciach, George,<br>Hoffer                            | Essentials of System Analysis and Design                                     | PHI              | Latest Edition |
| R6      | Denis, Wixom,<br>Tegarden                               | System Analysis and Design with UML Version 2.0 An Object Oriented Approach  | Wiley            | Latest Edition |
| R7      | Ned Kock                                                | Systems Analysis & Design Fundamentals- A business process redesign approach | Sage             | Latest Edition |
| R8      | Er. V. K. Jain                                          | System analysis and Design                                                   | DreamTech Press  | Latest Edition |

### 8. List of Journals/ Periodicals/ Magazines/ Newspapers:

Computer Express, Chip, Data Quest

**NB:** The Instructor/s (Faculty Member/s) will be required to guide the students regarding suggested readings from Text(s) and references in items 6 and 7 mentioned above

### 9. Session Plan:

| Session | Topics to be covered                                                                                                                                                                                                                                                                              |
|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 - 4   | Software Definition, Nature and characteristics of software, Types of software Application legacy software, Software process Sources of software, Software Estimation Metrics Databases. , Estimation of Efforts and Scheduling, COCOMO, Cost Estimation Managing the Information systems project |
| 5 - 8   | PLANNING: Identifying and selecting systems development projects Generic Process Model, Waterfall Model; RAD:- Agile Development, Agile Process, Principles of Agile, Extreme Programming, Agile Process Models System Analysis                                                                   |

|         |                                                                                                                                                                                                                                                                                                                               |
|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 9 - 18  | Principles of System Analysis, determining systems requirements, structuring systems process requirements, structuring systems logic requirements, Structuring systems data requirements System Modeling Structured System Analysis – Understanding of System Environment Work Flow Behavioral Model<br>System Flow Chart SRS |
| 19 - 24 | System Design: Design Development Process, Structural Design Methodology, Data Structure and Database Design, Input and Output Design, User Interface Design                                                                                                                                                                  |
| 25 - 32 | System Implementation and Maintenance; Object – Oriented Analysis and Design OOPs Basics Object oriented system development life cycle, , System Requirement Modeling, using ‘USE CASES’ Object Oriented Design Implementation, Modeling and Design using UML                                                                 |
| 33 -36  | <b>Practical:</b> Student shall study at least 4 to 5 Case Studies on Systems Implementation Projects. The faculty shall guide students to develop the software so that can understand Systems Analysis Design practically                                                                                                    |